

ABSTRACT OF THE DISCLOSURE

The present invention provides a magneto-resistance effect (hereinafter, referred to as MR) type composite head <sup>The head includes</sup> comprising a reproduction head including an MR element arranged between a <sup>first</sup> ~~first~~ and a second magnetic shield; and a recording head arranged <sup>next</sup> ~~adjacent~~ to the reproduction head so as to use the second magnetic shield as a first magnetic pole film and having a second magnetic pole film opposing to the first magnetic pole via a magnetic gap; <sup>including</sup> the MR element comprising: <sup>including</sup> a center region including a ferromagnetic tunnel junction magneto-resistance effect film (hereinafter, referred to as a TMR film) having: a first ferromagnetic layer and a second ferromagnetic layer for generating a magneto-resistance effect using the first and the second magnetic shields as electrodes so that a current flows in an almost vertical direction between the first and the second magnetic shields; and a tunnel barrier layer provided between the first and the second ferromagnetic layer; and <sup>including</sup> an end region arranged to sandwich the center region from both sides for applying a bias magnetic field to the center region.

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